

Teaching Through Problem Solving

Math 7

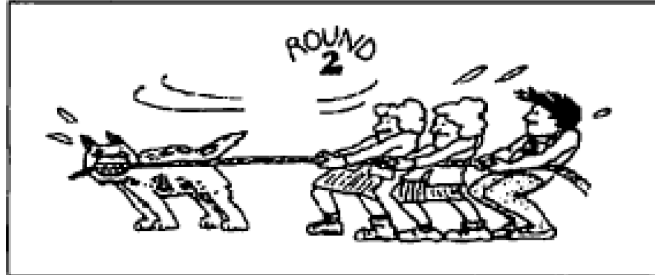
Curriculum Links	Problem																																										
7N2	If A = \$0.01, B = \$0.02, C = \$0.03, and so on, a) What is the value of your first name? What is the value of your last name? Who is the most expensive student in the class? b) Using this alphabet system, one of the days of the week is worth exactly \$1.00. Which day is it? c) Find other words that are worth exactly \$1.00.																																										
7N2 7SP5	Randy has \$13.00 to spend at his favorite restaurant. He wants to order two side dishes, one main dish, and one dessert. He knows he will also want to spend at least \$1.50 on video games while he waits for his order. a) Find three different meal combinations that Randy could choose. Show your calculations and explain how you thought about the problem. b) How many different meal combinations are possible if you chose one side dish, one main dish, and one dessert? Which is the least expensive meal? Which is the most expensive? <table><tr><th colspan="6">Menu</th></tr><tr><th colspan="2">Side Dishes</th><th colspan="2">Main Dishes</th><th colspan="2">Desserts</th></tr><tr><td>Taco Salad</td><td>\$3.50</td><td>Chicken and Rice</td><td>\$6.95</td><td>Flan</td><td>\$3.25</td></tr><tr><td>Quesadillas</td><td>\$2.25</td><td>Beef Fajitas</td><td>\$8.95</td><td>Baked Apples</td><td>\$2.45</td></tr><tr><td>Cheese Nachos</td><td>\$1.50</td><td>Chicken Fingers</td><td>\$4.50</td><td>Empanadas</td><td>\$3.15</td></tr><tr><td>Baked Potato</td><td>\$1.75</td><td>Chimichangas</td><td>\$5.95</td><td></td><td></td></tr><tr><td>Cole Slaw</td><td>\$1.00</td><td>Beef Burritos</td><td>\$4.95</td><td></td><td></td></tr></table>	Menu						Side Dishes		Main Dishes		Desserts		Taco Salad	\$3.50	Chicken and Rice	\$6.95	Flan	\$3.25	Quesadillas	\$2.25	Beef Fajitas	\$8.95	Baked Apples	\$2.45	Cheese Nachos	\$1.50	Chicken Fingers	\$4.50	Empanadas	\$3.15	Baked Potato	\$1.75	Chimichangas	\$5.95			Cole Slaw	\$1.00	Beef Burritos	\$4.95		
Menu																																											
Side Dishes		Main Dishes		Desserts																																							
Taco Salad	\$3.50	Chicken and Rice	\$6.95	Flan	\$3.25																																						
Quesadillas	\$2.25	Beef Fajitas	\$8.95	Baked Apples	\$2.45																																						
Cheese Nachos	\$1.50	Chicken Fingers	\$4.50	Empanadas	\$3.15																																						
Baked Potato	\$1.75	Chimichangas	\$5.95																																								
Cole Slaw	\$1.00	Beef Burritos	\$4.95																																								
7N3	Shade 6 of the small squares in the rectangle shown below. <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																																										

	Using the diagram, explain how to determine each of the following: a) The percent of the area that is shaded. b) The decimal part of the area that is shaded. c) The fractional part of the area that is shaded.																															
7N6	Activity Description: Use a set of integer cards numbered from -9 to +9 in a bag, a six, eight, or ten sided die, and a set of (+/-) operation cards. Shake the bag, and draw out five to eight integer cards. Roll the die, this becomes your target number. Use the drawn integer cards and any of the operation cards to create an integer sentence using addition and/or subtraction to total the number rolled on the die. Record your sentence, return the cards to the pile and try to make a different sentence. Variations: - Make an integer sentence totaling the number on the die using exactly three (or four or five) of the integer cards only. - Using at least three (or four or five) of the integer cards. - Using only addition. - Using only subtraction. - Using both addition and subtraction. - Using only negative numbers. - Using only positive numbers.																															
7N6	A man bought a horse for \$50 and sold it for \$60. He then bought the horse back for \$70 and sold it again for \$80. What do you think was the financial outcome of these transactions? Explain your reasoning.  Lost \$20  Lost \$10  Came out even  Earned \$10  Earned \$20  Earned \$30  Other (describe)																															
7SP5 7SP6	Suppose you roll a green die and a red die, and then compute the sum on each roll. <table><tr><td colspan="2"></td><th colspan="6">RED DIE</th></tr><tr><td colspan="2"></td><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr><tr><th rowspan="2">GREEN DIE</th><th>1</th><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><th>2</th><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>			RED DIE								1	2	3	4	5	6	GREEN DIE	1							2						
		RED DIE																														
		1	2	3	4	5	6																									
GREEN DIE	1																															
	2																															

		<table><tr><td rowspan="4">N D I E</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	N D I E	3							4							5							6						
N D I E	3																														
	4																														
	5																														
	6																														
		a) First complete the chart to show all the possible sums. b) Your task is to design two games for player A and player B. The first game should be a fair game, and the second game should be an unfair game in favor of Player A. State the rules of your games, and explain why you think each game is fair or unfair. c) Play several rounds of each of your games to test your hypothesis. Summarize the results of your experiment.																													
7N2 7N3 7N4 7PR3 7PR5	Your job in this mathematical contest is to decide who will win the final tug-of-war. The first two rounds give you the information you need. The First Round On one side there are four acrobats who have come down to the ground during the off-season for this special event. They have well-developed arm muscles because of all the swinging they do, and have proven themselves to be of equal strength. Remember that fact. On the other side are five neighbourhood grandmas, a tugging team that has practiced together for many, many years. They, too, are all equal in strength. Remember that fact also.  In the contest between these two teams, the result is dead even. Neither team can out-tug the other. Remember that too! 																														

Round Two

One team is Ivan, the specially trained dog that got his start as a pup when he was taken out for a walk by his owner. Ivan gets pitted against a team made up of two Grandmas and once acrobat. Again, it's a draw – an equal pull. Remember that fact.



Final Tug

It's the final tug that you must figure out. It will be between these two teams: Ivan and three of the Grandmas on one side, the four acrobats on the other. Can you figure out who will win this tug of war?

